

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

ENERGY DIVISION

RESOLUTION E-4943
September 27, 2018

R E S O L U T I O N

Resolution E-4943. Approval of San Diego Gas and Electric Company, Southern California Edison Company and Pacific Gas and Electric Company to open source cyber-security applications.

PROPOSED OUTCOME:

- This Resolution approves the request by San Diego Gas and Electric Company (SDG&E), Southern California Edison Company (SCE), and Pacific Gas and Electric Company (PG&E) to publicly release license rights to four cybersecurity software applications, developed under the 21st Century Energy Systems (CES-21) Program, to open source pursuant to Public Utilities (PU) Code section 851 and General Order (GO) 173.

SAFETY CONSIDERATIONS:

- Authorizing the public release of cybersecurity to open source will likely have a beneficial impact on safety and utility cybersecurity.

ESTIMATED COST:

- There is no cost impact.

By Advice Letters 3175-E (San Diego Gas and Electric Company), 3726-E (Southern California Edison Company), and 5215-E (Pacific Gas and Electric Company), filed on January 17, 2018.

SUMMARY

This Resolution approves the request by San Diego Gas and Electric Company (SDG&E), Southern California Edison Company (SCE), and Pacific Gas and

Electric Company (PG&E) to publicly release license rights to four cybersecurity software applications, developed under the 21st Century Energy Systems (CES-21) Program, to open source pursuant to Public Utilities (PU) Code section 851 and General Order (GO) 173. The release of these license rights will allow third parties to test and further develop the cybersecurity applications and is, therefore, in the public interest and will benefit ratepayers.

BACKGROUND

The CES-21 Program

Established via decision (D.) 12-12-031 and subsequently modified in D.14-03-029, the CES-21 Program is a public-private collaborative research and development R&D effort between SDG&E, SCE, and PG&E (collectively the Joint Utilities) and Lawrence Livermore National Laboratory (LLNL). The objective of the program is to address the challenges of cybersecurity and grid integration for the 21st century energy system in California. The CES-21 Program utilizes a team of technical experts from the Joint Utilities and LLNL who leverage and extend ongoing research in grid cybersecurity.

In implementing the program, the Joint Utilities have acquired intellectual property, including four new cybersecurity R&D applications that were developed under the program.

Joint Advice Letter 3175-E / 3726-E / 5215-E

On January 17, 2018, the joint utilities filed Advice Letter 3175-E / 3726-E / 5215-E (Joint AL) requesting, pursuant to PU Code § 851 and GO 173, the release of the four cybersecurity R&D applications to the open source community. Specifically, the Joint Utilities and LLNL would like to offer the following applications to the cybersecurity industry:

1. Indicator and Remediation Language (IRL), which was modified as part of the CES-21 research program by SCE so it can be more useful for utility communications related to cybersecurity threats (base IRL is already available on an open source basis);
2. Graph Indicator and Remediation Language (GraphIRL) applies graph theory to simplify the development and increase the accuracy of IRL in

Structured Threat Information eXpression (STIX) for research conducted by SCE;

3. GridDyn developed further under PG&E and LLNL research (the base GridDyn modeling software being already available from LLNL on an open source basis); and
4. Secure Supervisory Control and Data Acquisition (SCADA) system Protocol for the Twenty First Century (SSP-21) research conducted by SDG&E. The SSP-21 research application standardizes security for existing SCADA protocols.

The Joint Utilities state that these applications are ready to be transitioned from the R&D stage to the next development stage, where they can be used in practical applications. The Joint Utilities assert that releasing these products as open source will not create any residual risk to the utilities or their ratepayers. Moreover, the increased grid reliability, resiliency and safety that result from the release of these open source products are of significant value to ratepayers.

PU Code § 851 and GO 173

Under PU Code § 851 and GO 173, a regulated entity may submit an advice letter requesting Commission approval for certain transactions that transfer interests in utility property if the transaction is valued at \$5 million or less. The Joint Utilities claim that the transaction described in the Joint AL qualifies for advice letter treatment because the property being transferred does not have a fair market value in excess of \$5 million.

NOTICE

Notice of Joint AL 3175-E/3726-E/5215-E was made by publication in the Commission's Daily Calendar. SDG&E, SCE, and PG&E state that a copy of the advice letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

PROTESTS

Joint AL 3175-E/3726-E/5215-E was protested by the Office of Ratepayer Advocates (ORA) on February 14, 2018.

The Joint Utilities responded to the protest of ORA on February 22, 2018.

The following is a more detailed summary of the issues raised in the protest.

ORA Protest

ORA protested the Joint AL because it claimed (1) the Joint Utilities failed to meet their burden to establish that the Section 851 relief sought is eligible for advice letter treatment; and (2) the Joint Utilities failed to show that ratepayers will receive benefits for the funding of the creation of the intellectual property.

ORA also stated that it is not necessarily opposed to the general proposal to allow third parties access to the intellectual property, but the Joint Utilities need to demonstrate that ratepayers will receive direct benefits from the R&D they funded.

Joint Utilities' Reply to ORA Protest

In their reply, the Joint Utilities addressed two issues raised in ORA's protest: (1) PU Code 851 eligibility; and, (2) ratepayer benefits. Both issues are discussed in further detail below.

PU Code § 851 Eligibility and Ratepayer Benefits

In their reply, the Joint Utilities state that the budget for the cybersecurity project is \$33 million and is allocated across 10 tasks, and it is difficult to break out the budgets for each of the individual intellectual property research entities.

According to the Joint Utilities, the value of the open source code is, "in the community, collaborating, enhancing and supporting the open source to protect the electric Grid and national industrial control systems critical infrastructure."¹

The Joint Utilities restate their intent to put the applications into the open source community so they will be adopted by third parties to help increase protection of critical infrastructure. Further, they assert that keeping research results, such as the applications in question, would become expensive if they are, "closed walled behind the proprietary licensing model, with the risk of not being adopted by the

¹ Joint Utilities Reply at p. 2.

community due to cost or the proprietary nature of the [application].”² An open source model fosters peer review and further refinement of the applications, which will benefit ratepayers – through greater protection of the grid – after the CES-21 program ends.

DISCUSSION

Energy Division has reviewed the Joint AL, ORA’s protest and the Joint Utilities’ reply to the protest. In considering this request, two key questions need to be answered:

1. Is it appropriate for the Joint Utilities to seek approval to publicly release license rights to intellectual property within the CES-21 Program via advice letter pursuant to PU Code § 851 and GO 173?
2. Will publicly releasing intellectual property to open source provide benefits to the ratepayers who fund the CES-21 Program?

This discussion will address each issue in detail below.

Seeking Approval via the Advice Letter Process Pursuant to PU Code § 851 and GO 173

PU Code § 851 states:

A public utility... shall not sell, lease, assign, mortgage, or otherwise dispose of, or encumber the whole or any part of its railroad, street railroad, line, plant, system, or other property necessary or useful in the performance of its duties to the public, or any franchise or permit or any right thereunder, or by any means whatsoever, directly or indirectly, merge or consolidate its railroad, street railroad, line, plant, system, or other property, or franchises or permits or any part thereof, with any other public utility, without first having either secured an order from the commission authorizing it to do so for qualified transactions valued above five million dollars (\$5,000,000), or for qualified transactions valued at five million dollars (\$5,000,000) or less, filed

² Joint Utilities Reply at p. 3.

an advice letter and obtained approval from the commission authorizing it to do so.³

GO 173 states:

Except as otherwise provided by state law or Commission order, any public utility may file an advice letter to seek Commission approval of any transaction involving the transfer or disposition of utility property valued at \$5 million or less which meets the requirements for advice letter treatment specified in Section 851 and this GO.⁴

In their advice letter, the Joint Utilities claim that the four cybersecurity applications currently have minimal market value because they have only been used for research purposes. The purpose of the work, as the Joint Utilities point out, was to research discrete issues, not to develop a finished product. In their reply to ORA's protest, and in response to a subsequent Energy Division data request, the Joint Utilities further state that it is difficult to assign a specific value to the applications because they have not yet been released to the market and their use is limited to the research.

PU Code § 851 allows transactions of relatively lower value (\$5 million or less) to be approved via the advice letter process, while transactions over \$5 million must go through a lengthier process for obtaining approval by the Commission. Given that these applications do not have a specific market value because they have yet be released in the market, and were only used for discrete research purposes, they should be treated as other lower value transactions pursuant to PU Code § 851. In other words, it is appropriate to seek approval for this transaction through the advice letter process.

Ratepayer benefits

When initially establishing the program, D.12-12-031 stated that CES-21 would benefit ratepayers by better protecting both electric and gas operations and

³ PU Code Section § 851.

⁴ GO 173, Rule 2.1.

customer privacy through cybersecurity research.⁵ In the years since the decision was adopted by the Commission, CES-21 had completed cybersecurity research that is valuable to California ratepayers and the utility industry in general. The Joint Utilities assert that the four cybersecurity applications which are the subject of this resolution will help improve utility communications related to cybersecurity threats, help simplify the development and increase the accuracy of cybersecurity language used in research, further develop cybersecurity modeling and standardize security for existing SCADA protocols. As noted in the Joint AL, offering these applications as open source products to the industry will allow the industry to further test, refine and update these four applications after the CES-21 Program is scheduled to sunset in 2019. Refinements to these software applications can help reduce our electric and gas infrastructures' vulnerability to cyberattacks and directly benefit ratepayers.

The Utility Cyber Security Branch, under the Office of Utility Safety, Safety and Enforcement Division has also reviewed the resolution and concurs releasing the software packages to open source provides material benefits, which may include more resilient code and higher levels of software adoption. As such, we see clear value in releasing these four applications to open source and view this transaction as a good use of ratepayer funds.

Therefore, we approve the Joint Utilities to request to release these four software application licenses to open source without modification.

COMMENTS

Public Utilities Code section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for

⁵ D.12-12-031 at p. 3.

comments, and will be placed on the Commission's agenda no earlier than 30 days from today. No parties filed comments.

FINDINGS

1. The 21st Century Energy Systems (CES-21) Program addresses challenges of cybersecurity and grid integration of the energy system for California.
2. On January 17, 2018, San Diego Gas and Electric Company, Southern California Edison Company, and Pacific Gas and Electric Company (collectively known as the Joint Utilities) filed an advice letter requesting approval to publicly release license rights to four cybersecurity software applications developed within the CES-21 Program to open source pursuant to Public Utilities Code Section 851 and General Order 173.
3. Public Utilities Code Section 851 and General Order 173 authorize entities regulated by the Commission to submit an advice letter that requests approval for certain transactions that are valued at \$5 million or less.
4. It is appropriate for the Joint Utilities to seek approval to release license rights to the four applications because the applications have not yet been released to the market and currently do not have a fair market value over \$5 million.
5. The four applications that will be released to open source are designed to help reduce the utilities' vulnerability to cyberattacks, and public releasing the four cybersecurity applications to open source is beneficial to ratepayers because it will allow the industry to further refine and develop these applications.

THEREFORE IT IS ORDERED THAT:

1. The request of the San Diego Gas and Electric Company, Southern California Edison Company, and Pacific Gas and Electric Company to public release the four cybersecurity applications to open source as requested in Joint Advice Letter 3175-E/3726-E/5215-E is approved.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed, and adopted at a conference of the Public Utilities Commission of the State of California held on September 27, 2018, the following Commissioners voting favorably thereon:

/s/ ALICE STEBBINS
ALICE STEBBINS
Executive Director

MICHAEL PICKER
President

CARLA J. PETERMAN
LIANE M. RANDOLPH
MARTHA GUZMAN ACEVES
CLIFFORD RECHTSCHAFFEN
Commissioners